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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,047	10/01/2003	Kyoung-Ja Woo	06181/0200102-US0	6651
7278	7590	05/15/2006	EXAMINER	
DARBY & DARBY P.C.			VANOS, TIMOTHY C	
P. O. BOX 5257				
NEW YORK, NY 10150-5257			ART UNIT	PAPER NUMBER
			1754	

DATE MAILED: 05/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/678,047

Applicant(s)

WOO ET AL.

Examiner

Timothy C. Vanoy

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16, 18 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-14 is/are allowed.
- 6) ☒ Claim(s) 16, 18 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

Art Unit: 1754

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 16, 18 and 20 are again rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 5,770,172 to Linehan et al.

The Linehan et al. patent discloses a process for making nanometer-sized (i. e. sizes that are not more than 20 nm.: please see col. 3 lines 58-62) metal oxide compounds to include maghemite;  $\alpha\text{-Fe}_2\text{O}_3$  (i. e. hematite) and mixtures thereof (please see col. 6 lines 4-10).

The difference between the applicants' claims and the Linehan et al. patent is that the applicants' claims are specifically limited to maghemite;  $\alpha\text{-Fe}_2\text{O}_3$  (i. e. hematite) and mixtures thereof while col. 6 lines 4-10 in the Linehan et al. patent discloses a variety of metal oxides to include the maghemite;  $\alpha\text{-Fe}_2\text{O}_3$  (i. e. hematite) and mixtures thereof in applicants' claims 16, 18 and 20, *however* it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* the courts have already determined that each species within a prior art reference's list of species is "inherently anticipated" by one of ordinary skill in the art: please see the discussion of the *In re Petering* 301 F.2d 676, 681, 133 USPQ 275, 280 (CCPA 1962) court decision set forth in section 2144.08(II)(A)(4)(a) in the MPEP 8<sup>th</sup> Ed. Rev. 3, Aug. 2005.

The difference between the applicants' claims and the Linehan et al. patent is that the applicants' claims limit the composition to being "rod-shaped".

A review of the Linehan et al. patent reveals that they also made their metal oxide nanoparticles in a method that also involved a "reverse micelle solution" (please see col. 3 lines 8-10 and col. 3 lines 55-57 in the Linehan et al. patent, for example).

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to have further described* the nanometer-sized metal oxides set forth in col. 6 lines 4-10 in the Linehan et al. patent as being "rod-shaped", in the manner set forth in applicants' claims 16, 18 and 20, *because* it is reasonably expected that the same maghemite and hematite produced by a similar process using a reverse micelle solution would inherently be in the same shape as that described by the applicants' claims because both the applicants and Linehan et al. use reverse micelle solutions to produce the same maghemite and hematite. Please note that the courts have already determined that such mere recognition of latent properties in the prior art (in this case, the shape of the nanometer-sized metal oxides disclosed in col. 6 lines 4-10 in the Linehan et al. patent being "rod-shaped") does not render non-obvious an otherwise known invention: please see the discussion of the *In re Wiseman* 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) court decision set forth in section 2145(II) in the MPEP 8<sup>th</sup> Ed. Rev. 3, Aug. 2005.

Claims 1-14 have not been rejected under either 35USC102 or 35USC103 because there is nothing in U. S. Patent 5,770,172 which teaches or suggests that a

Art Unit: 1754

proton scavenger be added to the reverse micelle solution, in the manner required by the applicants' claim 1 and the claims dependent thereon.

### ***Response to Arguments***

Applicant's arguments submitted with the amendment filed on Apr. 28, 2006 have been fully considered but they are not persuasive.

a) *The applicants argue that Linehan (U. S. Patent 5,770,172) does not provide a mechanism to control all of the size, uniformity, shape and phase of the particles. For example, rather than selectively producing a single phase, maghemite phase, hematite phase, FeOOH phase, etc. are produced all at once by the process. As a result, the process of Linehan produces nanometer-sized multi-metallic compounds. Unlike the invention disclosed in Linehan, in the method for synthesizing metal oxide particles in accordance with the present invention, size, uniformity, shape and phase of particles can be easily controlled.*

The argument is not accompanied with a showing of an unobvious distinction between the applicants' composition and the composition described in the Linehan et al. patent (U. S. Patent 5,770,172). The Linehan process is not limited to the production of multi-metallic compounds: please see claim 7 in the Linehan et al. patent. The applicants' process may also produce mixtures of compounds: please see applicants' claim 20.

b) *The applicants argue that their invention can provide rod-shaped nanoparticles of a single phase as it has a mechanism to control the phase of the nanoparticles. The*

Art Unit: 1754

*novel methods of the present invention produce rod-shaped nanoparticles that have superior shape anisotropy, atmospheric stability and magnetic characteristics.*

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to have further described* the nanometer-sized metal oxides set forth in col. 6 lines 4-10 in the Linehan et al. patent as being "rod-shaped", in the manner set forth in applicants' claims 16, 18 and 20, *because* it is reasonably expected that the same maghemite and hematite produced by a similar process using a reverse micelle solution would inherently be in the same shape as that described by the applicants' claims because both the applicants and Linehan et al. use reverse micelle solutions to produce the same maghemite and hematite. Please note that the courts have already determined that such mere recognition of latent properties in the prior art (in this case, the shape of the nanometer-sized metal oxides disclosed in col. 6 lines 4-10 in the Linehan et al. patent being "rod-shaped") does not render non-obvious an otherwise known invention: please see the discussion of the *In re Wiseman* 596 F.2d 1019, 201 USPQ 658 (CCPA 1979) court decision set forth in section 2145(II) in the MPEP 8<sup>th</sup> Ed. Rev. 3, Aug. 2005.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

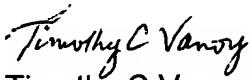
Art Unit: 1754

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 571-272-8158. The examiner can normally be reached on Mon-Fri 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Timothy C Vanoy  
Primary Examiner  
Art Unit 1754



Application/Control Number: 10/678,047  
Art Unit: 1754

Page 8

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